

WHAT IS CLAIMED IS:

1. A substrate bonding apparatus for manufacturing a liquid crystal display (LCD) device, comprising:

a base frame;

a lower chamber unit mounted to the base frame;

an upper chamber unit joinable to the lower chamber unit;

an upper stage fixed to the upper chamber unit for securing a first substrate;

a lower stage fixed to the lower chamber unit for securing a second substrate; and

a plurality of elastic members arranged between the upper and lower chamber units and the upper and lower stages, respectively.

2. The substrate bonding apparatus according to claim 1, wherein

the upper and lower chamber units are convexly bendable within the substrate bonding apparatus; and

the plurality of elastic members exert restoration forces to the upper and lower chamber units.

3. The substrate bonding apparatus according to claim 1, wherein the plurality of elastic members include a coil spring.

4. The substrate bonding apparatus according to claim 1, wherein the plurality of elastic members include an initially-coned disk spring.

5. The substrate bonding apparatus according to claim 1, wherein the plurality of elastic members include a plate spring.

6. The substrate bonding apparatus according to claim 1, wherein the plurality of elastic members include at least one elastic member arranged between the upper chamber unit and the upper stage and at least one elastic member arranged between the lower chamber unit and the lower stage.

7. The substrate bonding apparatus according to claim 1, wherein the plurality of elastic members include at least two elastic members arranged between the upper chamber unit and the upper stage and at least two elastic members arranged between the lower chamber unit and the lower stage.

8. The substrate bonding apparatus according to claim 1, wherein at least one of the upper and lower stages includes:

a fixing plate coupled to a corresponding one of the upper and lower chamber units; and
a securing plate for securing a corresponding one of the first and second substrates.

9. The substrate bonding apparatus according to claim 8, wherein the plurality of elastic members are arranged between the fixing plate and the upper chamber unit.

10. The substrate bonding apparatus according to claim 8, wherein the plurality of elastic members are arranged between the fixing plate and the lower chamber unit.

11. The substrate bonding apparatus according to claim 8, wherein the plurality of elastic members are arranged between the fixing plate and the securing plate.

12. The substrate bonding apparatus according to claim 11, further comprising at least one elastic member arranged between the fixing plate and the upper chamber unit.

13. The substrate bonding apparatus according to claim 11, further comprising at least one elastic member arranged between the fixing plate and the lower chamber unit.

14. The substrate bonding apparatus according to claim 8, wherein the securing plate includes a plurality of electrostatic chucks.

15. The substrate bonding apparatus according to claim 14, wherein the plurality of elastic members are arranged in correspondence with positions of the plurality of electrostatic chucks.

16. The substrate bonding apparatus according to claim 8, wherein the securing plate includes stainless steel.

17. The substrate bonding apparatus according to claim 8, wherein the securing plate includes an aluminum alloy.

18. The substrate bonding apparatus according to claim 8, wherein the securing plate is at least about 40mm thick.

19. The substrate bonding apparatus according to claim 1, wherein the plurality of elastic members are arranged between the upper chamber unit and the upper stage.

20. The substrate bonding apparatus according to claim 1, wherein the plurality of elastic members are arranged between the lower chamber unit and the lower stage.

21. A method of fabricating a display, comprising:

- providing an upper stage coupled to an upper chamber unit via at least one elastic member;
- providing a lower stage coupled to a lower chamber unit via at least one elastic member;
- loading a first substrate onto the upper stage;
- loading a second substrate onto the lower stage;
- joining the upper and lower chamber units to create an interior space surrounding the first and second substrates;
- evacuating the interior space, wherein an interior surface of the upper and lower chamber units is convexly bendable with respect to the first and second substrates while a surface of the upper stage opposing a surface of the lower stage remains substantially parallel to the surface of the lower stage; and
- bonding the first and second substrates together within the interior space.

22. The method of fabricating a display according to claim 21, wherein the bonding includes bonding the first and second substrates in the evacuated interior space.